

FIGURE 1

ON-BOARD PROGNOSTIC INSTRUMENT ENGINEER (OPIE)

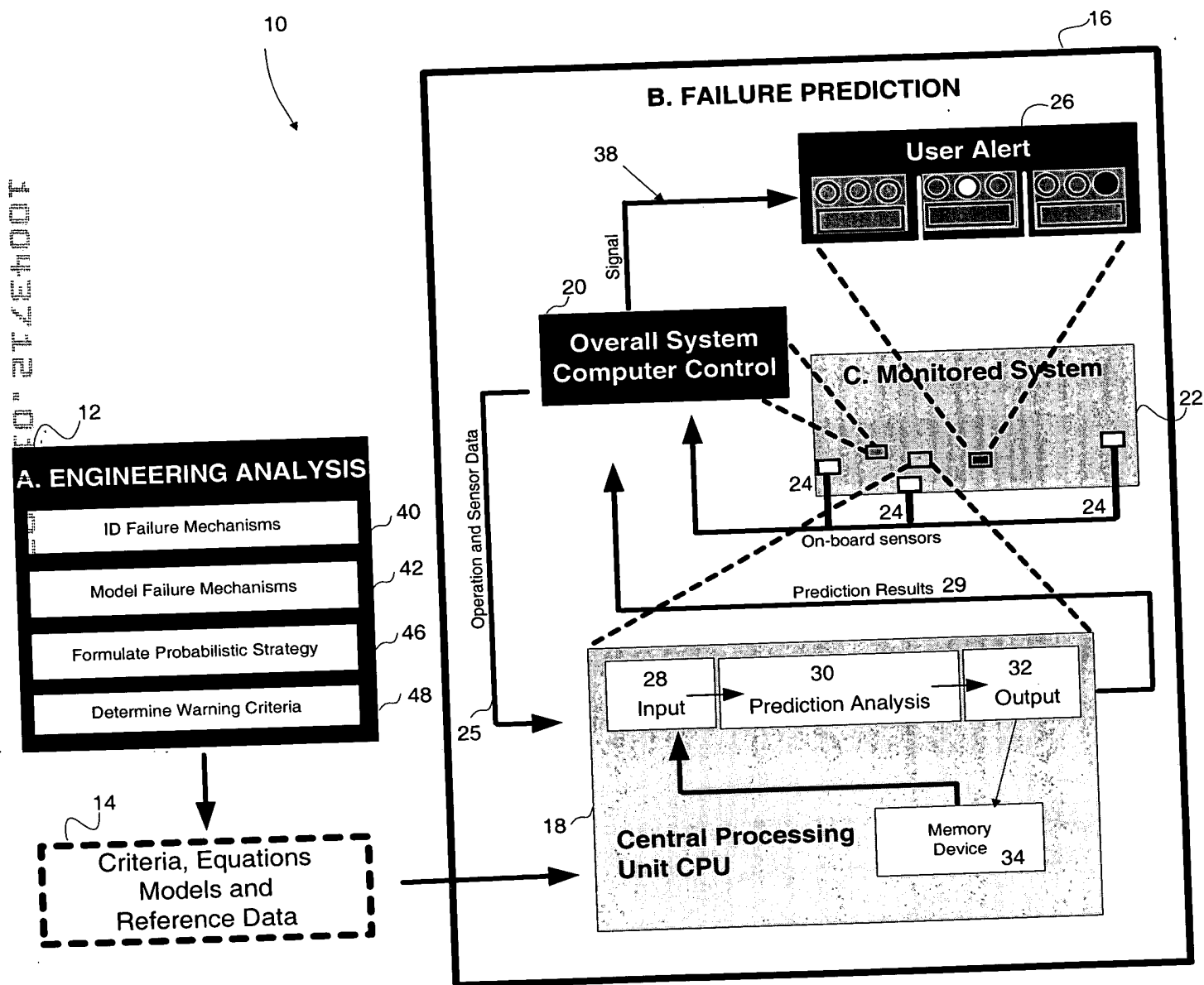


Figure 2A

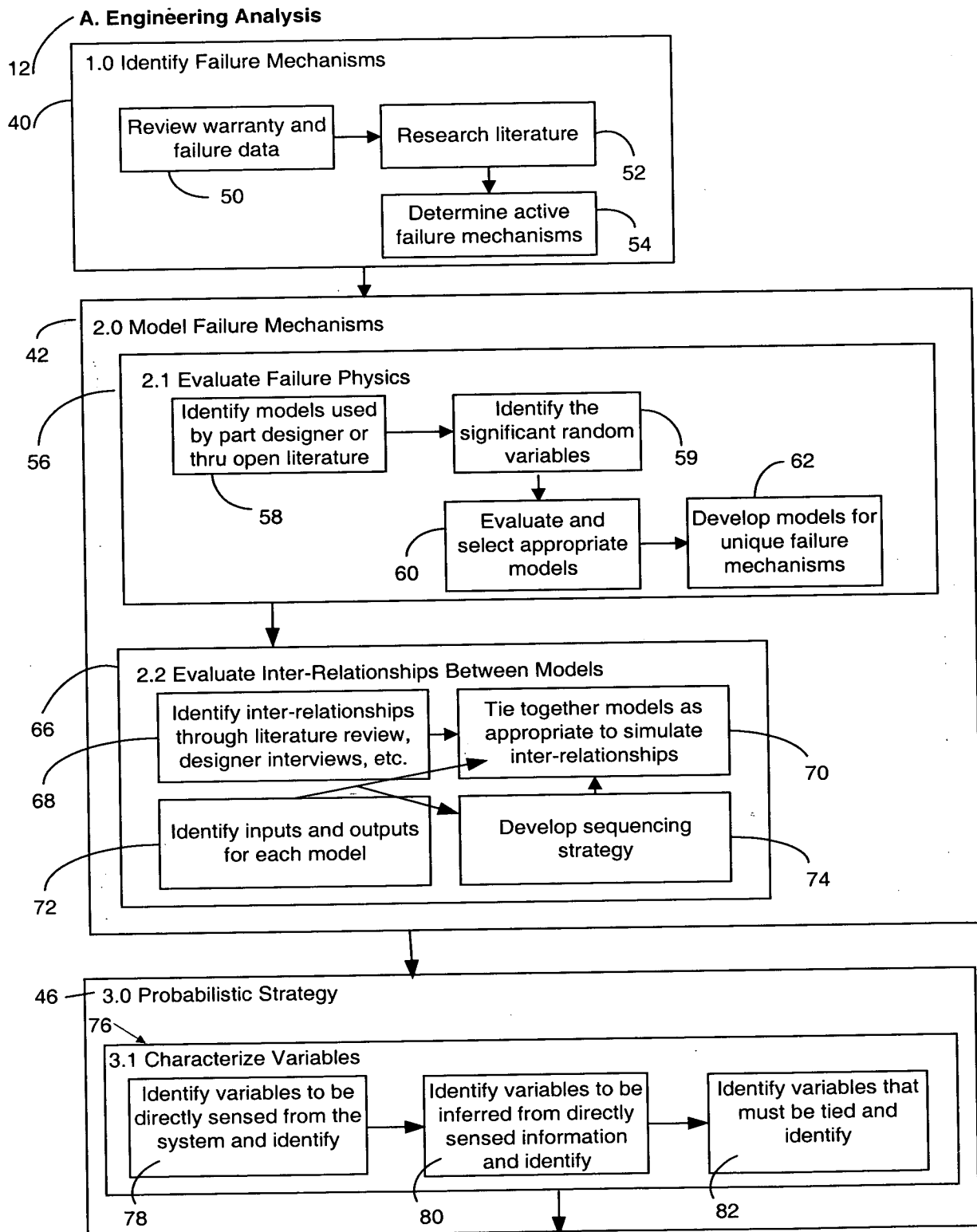


Figure 2B

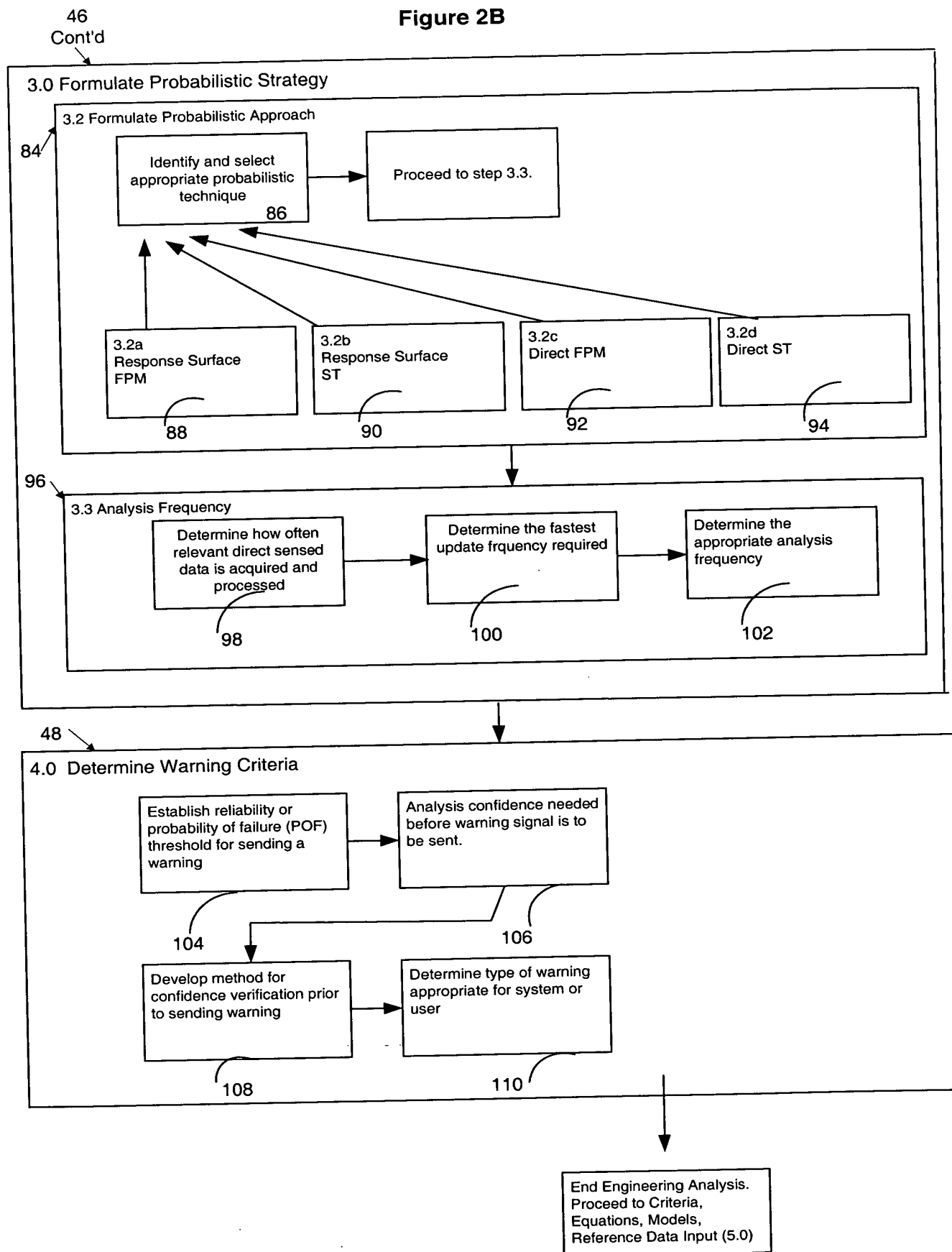


FIGURE 2C

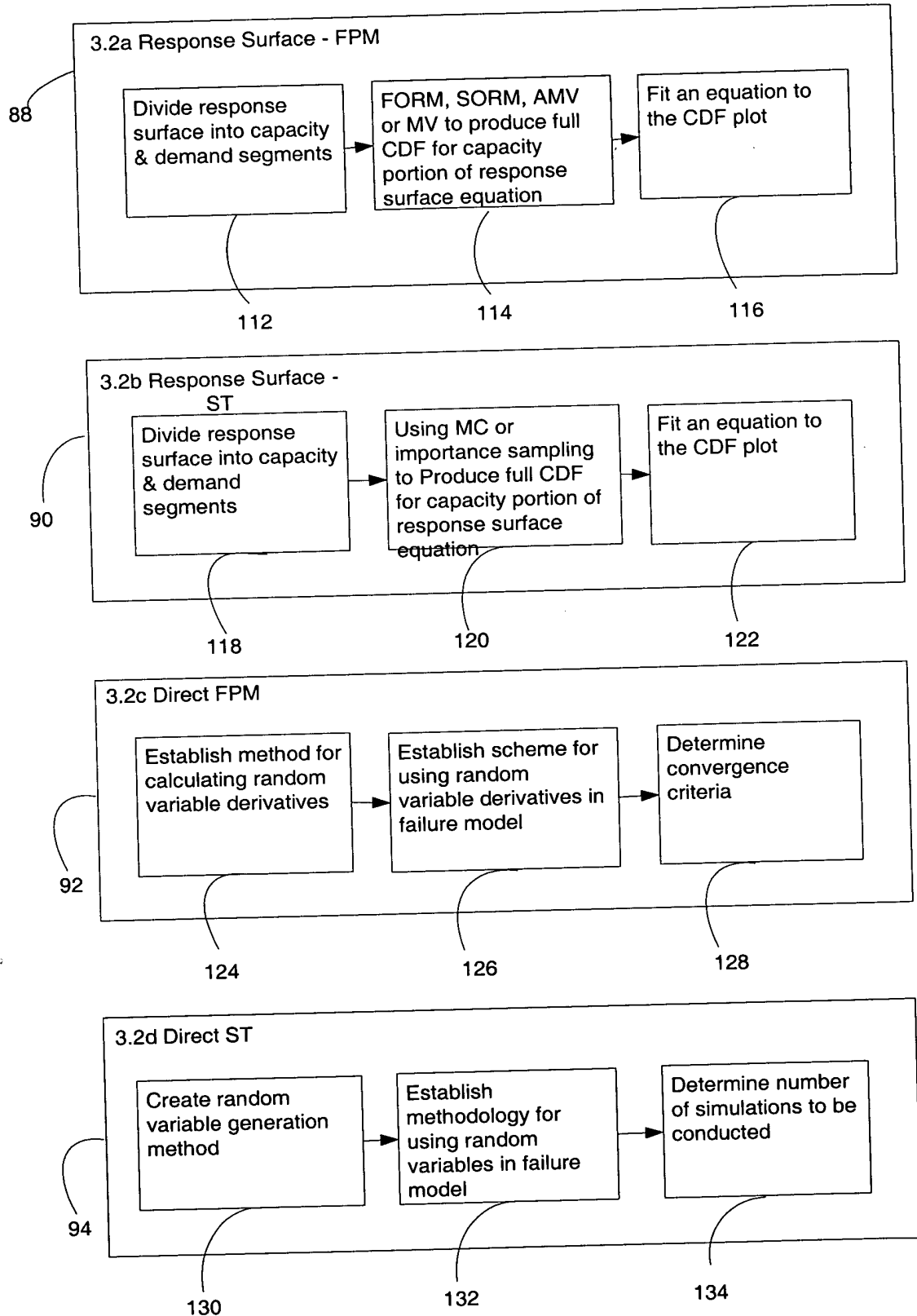


Figure 2D

14

5.0 Criteria, Equations, Models, Reference Data Input

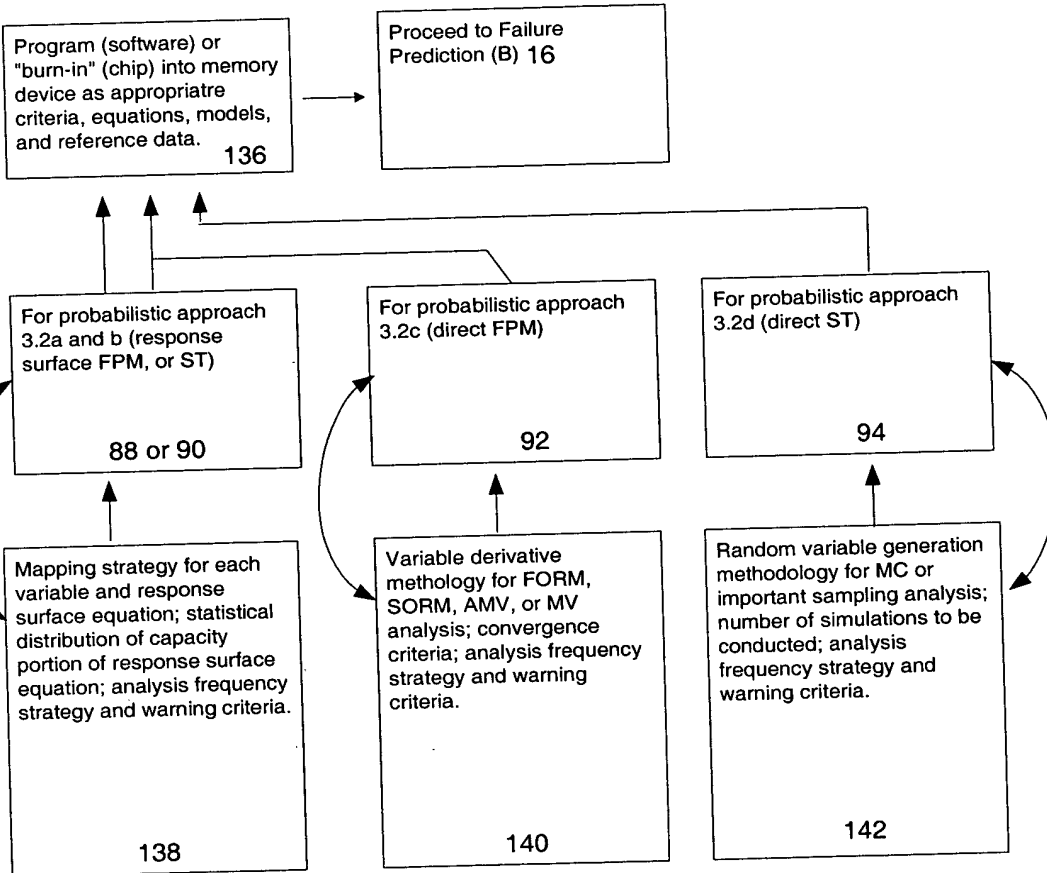


Figure 3A

1.0 Central Processing (CPU)

18

1.1 Input data

25

Read operation and sensor data (from Overall System Computer Control) according to frequency strategy, and map data to appropriate variables.

30

1.2 Prediction Analysis

Use this process for Probabilistic Response Surface.

88, 90

Calculate the "Demand" portion of the response surface.

146

Determine POF at Demand (using CDF equation)

148

Use this process for Probabilistic Direct FPM.

92

Determine POF using FORM, SORM, AMV or MV.

152

Use this process for Probabilistic Direct ST.

94

Establish reliability or probability of failure (POF). Determine POF using MC or importance sampling.

156

Compare POF to exceedance criteria and verified per confidence criteria.

160

Follow appropriate warning criteria.

162

32

1.3 Output Data

Store variable readings, POF and selected warning criteria and warning information into memory device 34.

164

Commute appropriate warning information to Overall System Computer Control.

166

Proceed to 174.

Figure 3B

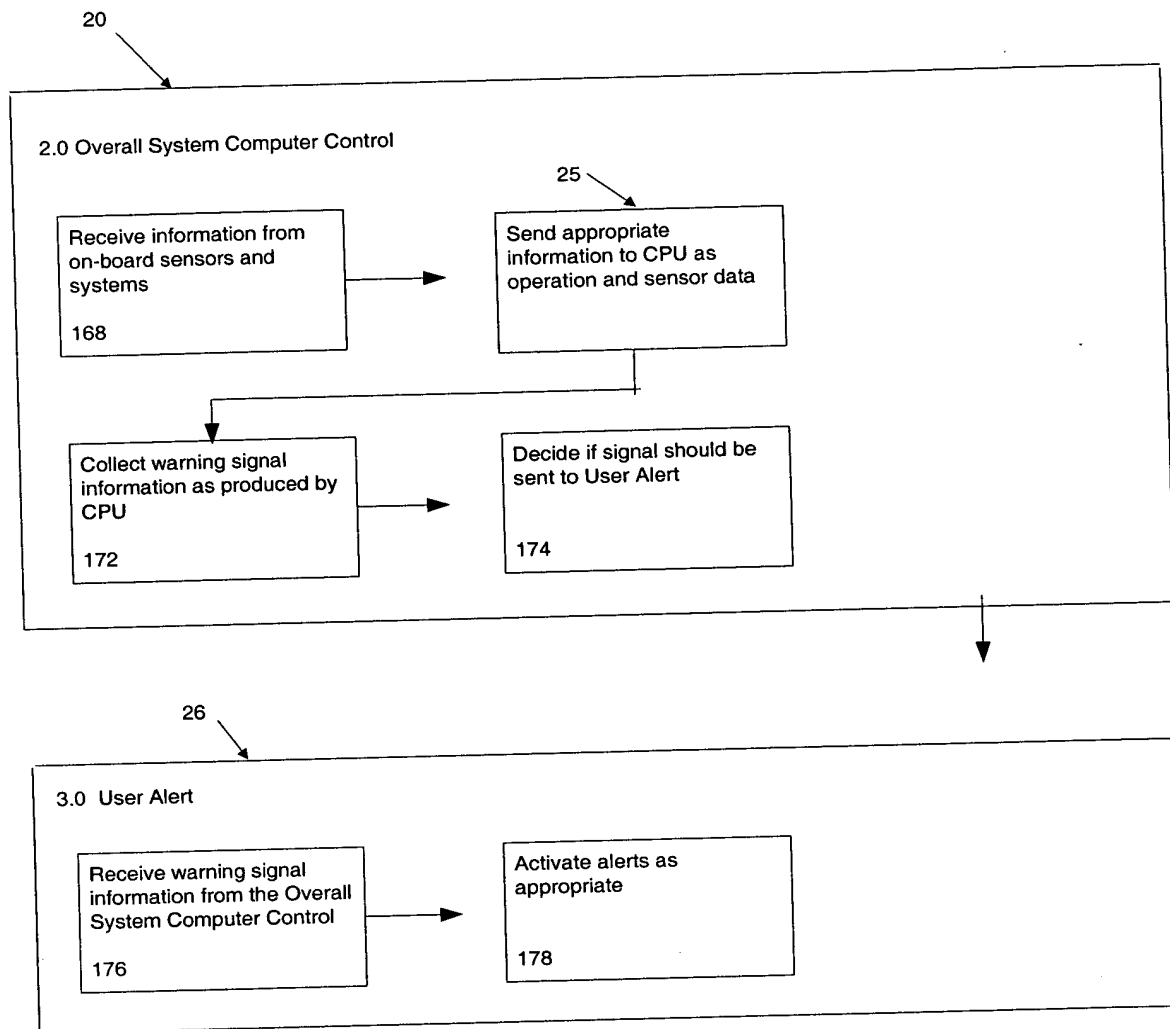
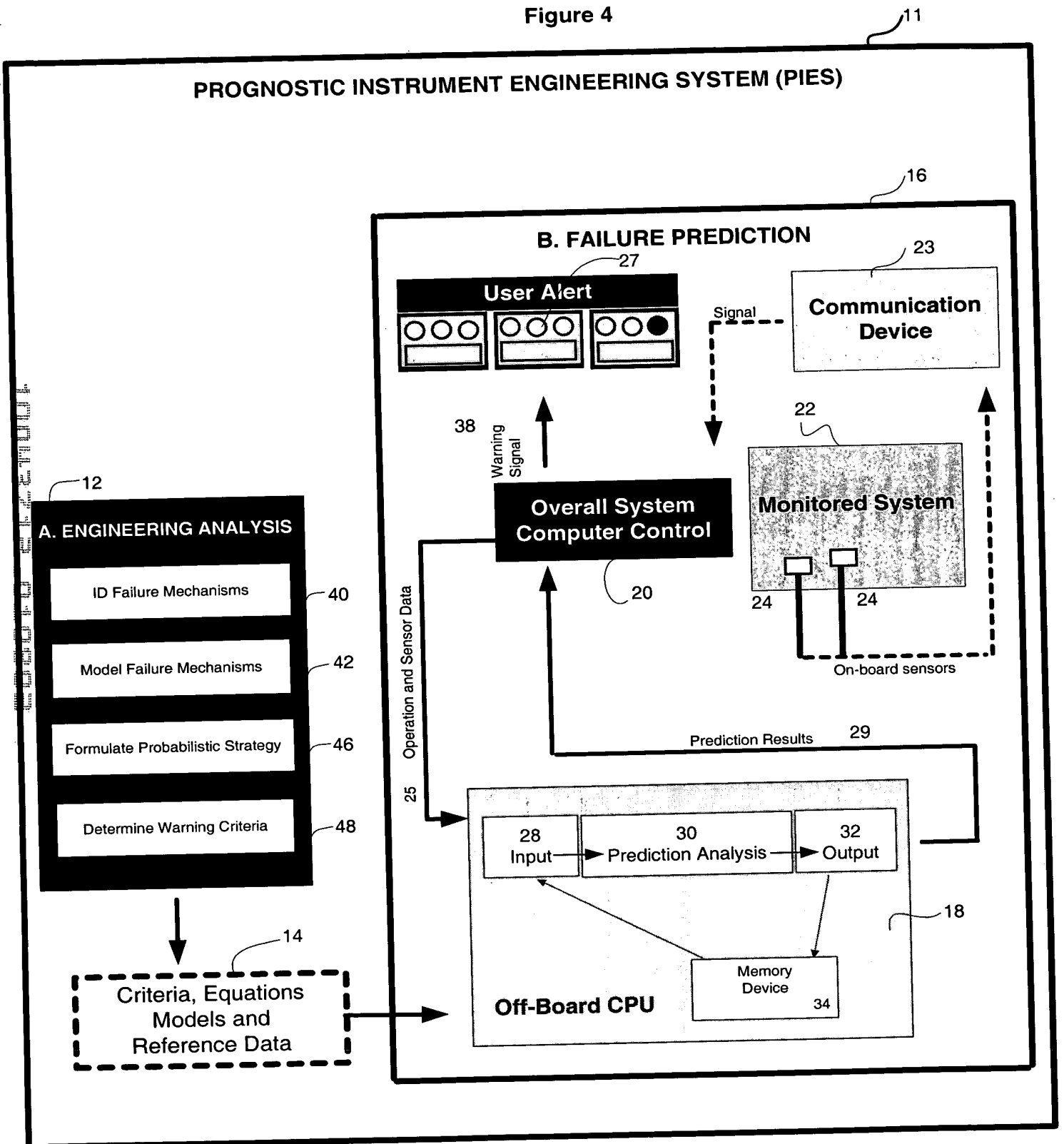


Figure 4



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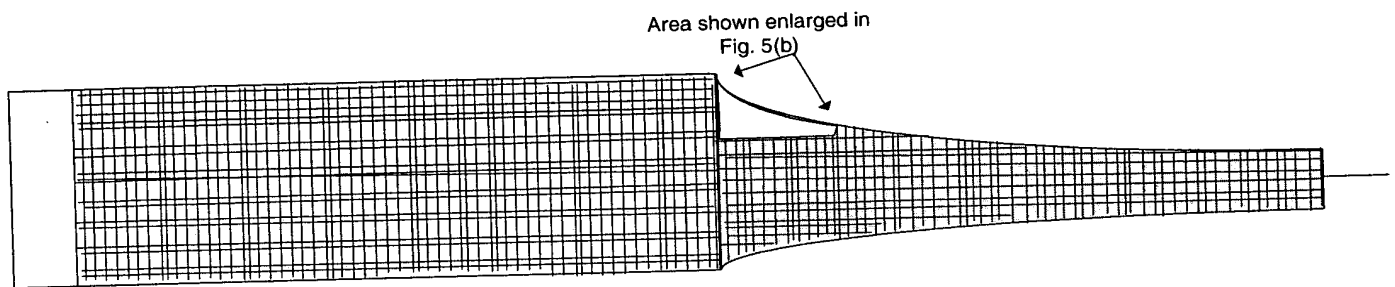


Figure 5(a)

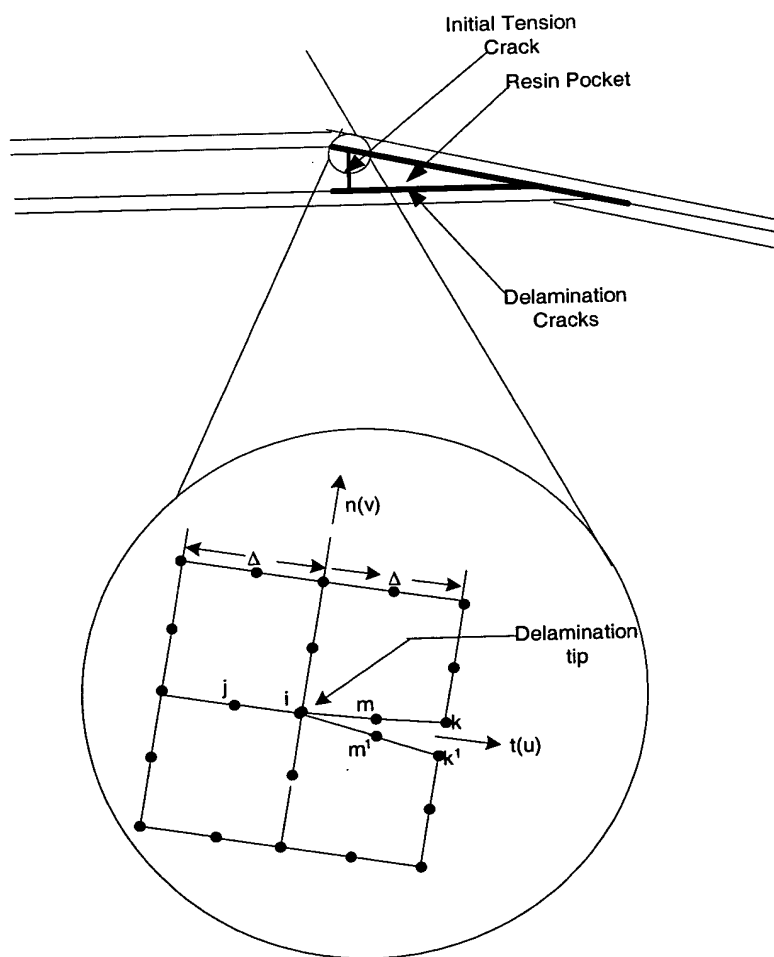


Figure 5(b)

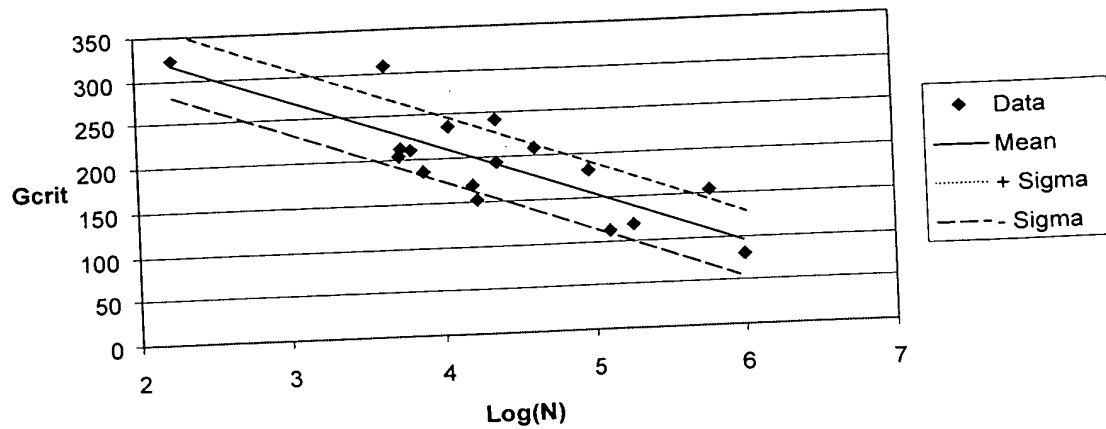


Figure 5(c)

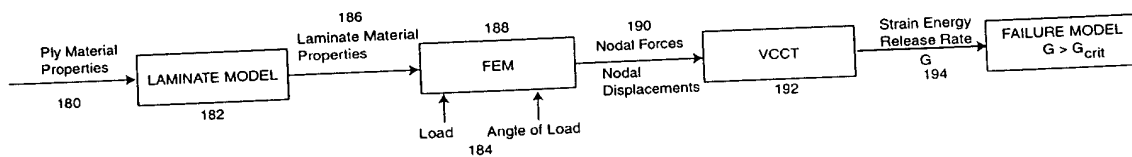


Figure 5(d)

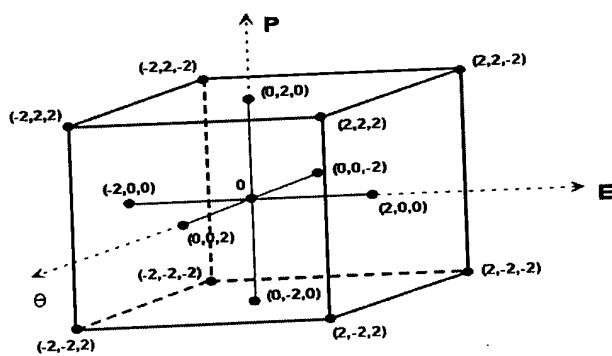


Figure 5(e)

208010" 214E400T

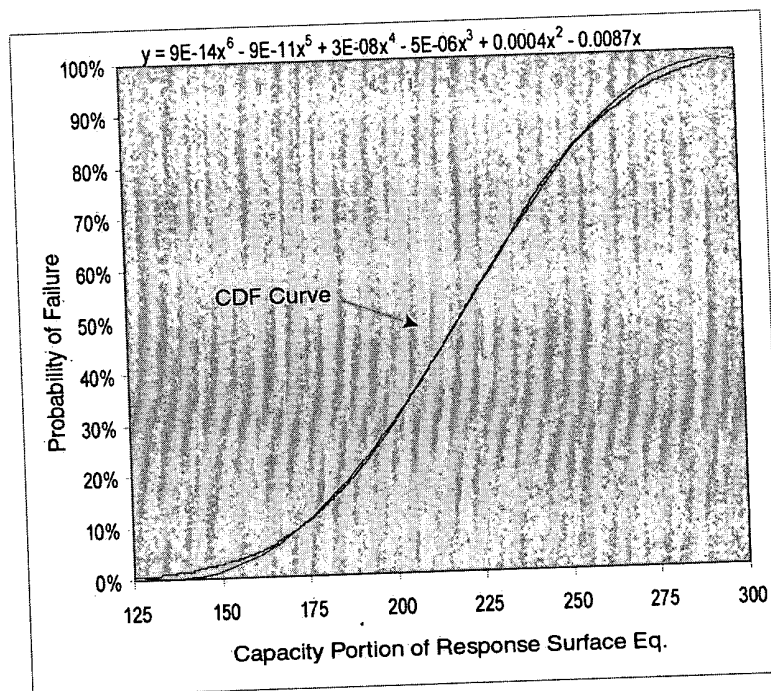


Figure 5(f)